

AMENDMENTS TO THE SPECIFICATION

The following is a copy of portions of Applicants' specification that identify language being added with underlining ("____") and language being deleted with strikethrough ("—") or double brackets ("[[]]"), as is applicable:

For the paragraph beginning on page 1, line 19 of the application, please amend as follows:

Interactive television is an enhanced video technology enabled by two-way communication between a subscriber and a subscriber network system headend that is made possible by digital transmission technology and consists of such enhanced services as video-on-demand ("VOD"). In the digital transmission infrastructure that is utilized for interactive television, VOD service requires the exclusive or substantially exclusive use of bandwidth capacity, and thus, a portion of the infrastructure serves as the VOD infrastructure. Multiple System Operators ("MSOs") ~~invests~~ invest millions of dollars in the construction and maintenance of VOD infrastructures to insure that there is sufficient bandwidth capacity available for VOD service. Thus, there is a need to efficiently utilize the VOD infrastructure to generate revenue.

For the paragraph beginning on page 10, line 1 of the application, please amend as follows:

PRM content or data can reside in the PRM application server 319, in the VOD content server 322, or in other application servers (not shown). The content manager 321 and VOD content servers 322 deliver MPEG-2 content to a group of QAM modulators 324. PRM content can reside in VOD content servers 322 as a movie, as an audio program, or as an MPEG-2 private data program. The content manager 321 is responsible for managing the content on the VOD content servers 322 and on other servers such as PRM application server 319 or other application servers (not shown). The PRM application server 319 utilizes the content manager 321 and VOD content servers 322 to deliver the

data, video and/or audio streams that make up the PRM services. The PRM application server 319 is also responsible for controlling the content manager 321 and VOD content servers 322. The QAM group 324 is actually a multiplex of QAMs that support PRM content transmission to a particular DHCT 16. The session manager 334 in DNCS 323 determines which QAM modulator has access to a particular DHCT 16. The QAM modulators 324 are also responsible for encrypting the transport stream and inserting other data and information into the stream, as will be described in more detail below. The QAM modulators 324 receive the MPEG-2 transport stream from the VOD content servers ~~222~~ 322 and convert it to an encrypted RF signal at a specified frequency (channel).

For the paragraph beginning on page 10, line 20 of the application, please amend as follows:

A Quadrature Phase-Shift Keying (QPSK) modem 326 is responsible for transporting the out-of-band IP (Internet protocol) datagram traffic between the distribution headend 11 and a DHCT 16. Data from the QPSK modem 326 is routed by headend router 327 within the headend 11. The headend router 327 is also responsible for delivering upstream application traffic, such as [[a]] user requests for PRM content, to the various application servers, such as, for example, PRM application server 319.

For the paragraph beginning on page 10, line 25 of the application, please amend as follows:

FIG. 4 is a block diagram illustrating a DHCT 16 that is coupled to a headend 11 and to a television 441. It will be understood that the DHCT 16 shown in FIG. 4 [[3]] is merely illustrative and should not be construed as implying any limitations upon the scope of the preferred embodiments of the invention. Some of the functionality performed by applications executed in the DHCT 16 (for example, the PRM client application 477) may

instead be performed at the headend 11 and vice versa, in some embodiments. A DHCT 16 is typically situated at the residence of a user or place of business and may be a stand-alone unit or integrated into another device such as, for example, a television set or a personal computer or an audio device, such as, for example, a programmable radio. The DHCT 16 preferably includes a communications interface 442 for receiving signals (video, audio and/or other data) from the headend 11 through the network 18 and for providing any reverse information to the headend 11 through the network 18.

For the paragraph beginning on page 15, line 22 of the application, please amend as follows:

In one embodiment, the DHCT 16 includes a primary storage device 413 and a secondary storage device 414. The ability to record programming on the primary storage device 413 provides a convenient method to temporarily buffer programming to fit a viewing schedule, however, in accordance with one embodiment, for economic reasons the systems will have a limited amount of primary storage. In one implementation, based on, for example, existing VCR usage patterns, there will be many occasions when the user will want to save or archive programs on the secondary storage device 414 for later viewing or archive the programs for later reference. The primary storage device 413 is preferably internal to DHCT 16 and in electrical communication to an internal main bus for communication with other DHCT 16 elements through a data interface 412 such as a SCSI or IDE interface. In other embodiments, the primary storage device 413 can be externally connected to (and thus removable from) the DHCT 16 via a communication port (for example, 474 or 475) such as IEEE-1394 or USB or via a SCSI or an IDE interface. The primary storage device 413 is preferably a hard disk drive. The primary storage device 413 exhibits fast seek-time and high data transfer rates rate properties and its storage medium is preferably non-removable, such as in the case of a hard disk drive. Because the amount

of data in one or more downloaded instances of PRM content typically surpasses the memory space allocated for application data in memory 449, and because the primary storage device 413 features sufficiently large storage capacity, the primary storage device 413 serves, in one implementation, as a large repository or cache for downloaded PRM content. Alternatively, memory 449 may be large enough (and fast enough) to accommodate data transfers without the need for the primary storage device 413.

For the paragraph beginning on page 17, line 11 of the application, please amend as follows:

The PRM client application 477 configures the DHCT 16 for the download, purchase, and billing of downloaded purchasable recordable media (PRM) content, including configuring the DHCT 16 for receipt of trial and impulse purchases of PRM content. The PRM application client 477 also provides for a user interface for specification of downloading options in cooperation with PRM application server 319 (FIG. 3) and in cooperation with other client applications, for example VOD 463 and PPV 464 and Music applications 478 ~~(not shown)~~. Alternatively, the user interface may be provided from the head end 11. Regarding the billing functionality, after a purchase transaction has occurred and the purchase is acknowledged, the purchase is recorded for billing purposes. In one embodiment, the PRM application client 477 configures the processor 444 to cause PRM purchase transactions to be stored in the FLASH memory 451 part of system memory 449 or in some other designated non-volatile memory section of DHCT 16 as purchase transactions occur. PRM transaction records and associated fees are transmitted upstream via the OOB upstream channel at designated scheduled times (e.g., during low bandwidth consumption periods) to the billing system 320. Alternatively, the PRM application server 319, under the direction of the billing system 320, may periodically poll individual DHCTs 16 or group of DHCTs to collect their respective PRM transaction history. PRM transaction

records received from the DHCT 16 by the PRM application server 319 (FIG. 3) are debited from the respective account of the subscriber by the billing system 320.

For the paragraph beginning on page 18, line 3 of the application, please amend as follows:

The PRM client application 477 can offer the user a plurality of category choices, wherein the user may select from pre-configured categories from an input device such as a wired or wireless keyboard or remote control to classify downloaded PRM content into various categories. Alternatively, the user may enter textual information with an input device in order to create his or her own categories. Hence, downloaded PRM content can be recorded with modified or additional category information. In an alternate embodiment, a user can either download from the PRM application server 319, or transfer from a personal computer connected to a home communication network, additional information such as graphical information or a still picture to be included with the recording of the PRM content into recordable media inserted in secondary storage device 414. PRM client application 477 functionality further includes second database 482 management capabilities in which records of second database 482 can be stored in memory 449, primary storage device 413, or in a recordable disc inserted in secondary storage device 414. Management of the second database 482 extends library functionality to the user for archiving PRM content as well as non-PRM content accessible via the secondary storage device 414 or a home communication network. Hence, the user is able to archive media content, perform searches (as extended by search capabilities inherent in the database management software program), and edit personal annotations such as the media content category, date recorded, etc. In one embodiment, subscriber network programming, such as for example cable programming, is first recorded/stored on the primary data buffer (for example, in primary storage device 413) which is indexed by content ID and record date/time information (i.e. meta data). The minimum content ID information collected is the originating

channel number but could include program ID (PID) or other media content and media content description information. The record date/time information is simply the date/time the recording was made and is used by the system for data management/purge[[]] and can also be used by the subscriber as one of several methods to locate previously recorded media content. The media content recorded in the primary buffer (for example, primary storage device 413) is available for viewing and disposition by the subscriber. Media content can be viewed, deleted, or spooled along with the data accessible by universal or widely adopted access and naming conventions (e.g., as is characteristically in meta data) to a secondary buffer (for instance, in secondary storage device 414) for longer term storage and playback. Media content left in the primary buffer are subject to be overwritten by new media content. In one embodiment, the secondary buffer is located on removable media that can be stored for future playback.

For the paragraph beginning on page 20, line 1 of the application, please amend as follows:

Category display 512 includes one example default format based on characterizing information corresponding to the purchased recordable media content. In this example, since Titanic is a "movie" of the "drama" genre, the category display 512 lists "drama" in an outline format and categorizes selections in this medium, DVD#1, as movies. Alternate formats may be displayed as well, such as personalized formats created by the user. The scope of the embodiments of the invention is not limited by how data is formatted on the screen displays. Assuming the Titanic purchase as the first purchased download by the user, the default will be to DVD#1. As illustrated, extended library functionality comprises the capability to not only to catalog media content but each individual medium (i.e., a CD disc or DVD disc) loaded in the carousel or magazine drive of secondary storage device 414 (FIG. 4) by the type (or category) of data stored on them. Category information may comprise, for example, types of music (such as

classical, rock, or jazz), types of movies (such as comedy, drama, or horror), or types of software (such as games, word processing, or utilities). Sub-categories further delineate each category, for example, types of games. The library functionality determines if the appropriate disc is loaded in the secondary storage device 414 (FIG. 4) or prompts the user to load the secondary storage device 414 with the appropriate disc for the media content type that is to be recorded. For example, if rock & roll music, transmitted from the headend 11 to the DHCT 16, is being recorded, the library functionality will control the selection of the appropriate medium, for example a CD from the carousel or magazine of the secondary storage device 414, and load it into the drive for writing of the rock and roll music data to it, as shown in FIG. 6. As another example, if the user chooses to view a drama movie, the library functionality will control the selection of the proper medium, in this case a DVD, from the carousel or magazine of the secondary storage device 414 and load into the drive for reading of the drama movie data in order to transmit it to a display device, such as for example, a TV display 441 (FIG. 4).

For the paragraph beginning on page 20, line 23 of the application, please amend as follows:

In FIG. 6, the "A", "B", and "C" buttons on the example display screen 600 correspond to like buttons on the remote control device 480 to provide certain user interface functionality. For instance, "A" button 640 suggests to a user that the user can request more PRM content information, as will be explained in greater detail below. The "B" button 642 suggests editing and search functionality, as will be described in greater detail below. Return Button "C" 644 suggests that the user can return to the main screen display wherein the purchase was made, for example a VOD catalog screen, or PPV screen. From the main screen display, the user can select "play" (not shown) to have the archived PRM content of his or her choice presented. The "SEL" button 632 suggests that the user can

complete the archiving after making the selections in the pre-configured lists. Pressing the "SEL" button 387 (FIG. 7) on the remote control device 480, as suggested by select button 532 (FIG. 5), results in the example screen displayed in FIG. 8, as will be described in greater detail below. Buttons "A"-"C" (640, 642, and 644 respectively), arrow buttons 630, 634, 636 and 638, and "SEL" button 632 suggest a one-to-one functional correspondence to similar buttons on a remote device, such as the example remote control device 480 illustrated in FIG. 7. With continued reference to FIG. 6, FIG. 7 illustrates a block diagram example of a remote control device 480 that is used to provide user input to the DHCT 16. The arrow buttons 382 include an up arrow button 383, a down arrow button 384, a left arrow button 385, and a right arrow button 386 that are used to scroll through options or selections and/or to highlight an option or selection displayed on one of the plurality of user interface screens.

For the paragraph beginning on page 30, line 18 of the application, please amend as follows:

FIG. 31 is a screen diagram depicting an example barker screen 3100 resulting when a particular subscriber request for a PRM content instance cannot be fulfilled for lack of available bandwidth or other reasons. This screen 3100 may be presented after the user makes a PIN entry, or alternatively, after the user makes their download and content selections. Top portion 3151 contains a heading describing the problem to the user, a bottom portion 3152 illustrating relevant navigation button(s) available on the remote control device 480 (FIG. 4), and a top center portion 3153 which provides the user with a message, for example: "SORRY, PRM SERVICE IS CURRENTLY UNAVAILABLE. SELECT AN AVAILABLE OPTION OR "C" TO CANCEL". Download option list 3154 provides the user with a list of available download options and their content quality and price. As described earlier, communication occurs between the PRM client application and the PRM application

server 319 when content is downloaded to maintain the status of the download. Errors or aborted attempts at the download of PRM content is thus known at the PRM client application 477, resulting in the generation of the example barker screen 3100 of FIG. 31. Alternatively, this screen can be generated at the headend 11. The PRM client application 477 will also generate the download option list 3154 as part of the example barker ~~314~~ 3100 according to the mechanisms used to initially generate the download options for the PRM purchase screens, such as example purchase screen 2200 (FIG. 22). The user may use up arrow ~~3164~~ 3160 or down arrow 3164 to advance the highlighted window 3166 over the option window 3168 containing the desired download option. The user may then enter their selection by pressing the select button 3162. Example barker 3100 is sent from the PRM application server 319 (FIG. 3) notifying the subscriber that their request could not be fulfilled. Alternatively, the unavailability of the selected PRM during the selected download times may be communicated by the PRM application server 319 (FIG. 3) to the PRM client application 477 (FIG. 4), wherein the PRM client application 477 (FIG. 4) generates this example barker 3100. Alternatively, a screen may be presented such that the user is presented with a button to select alternative download options from the one of the purchase screens described and illustrated above. Alternatively, a subscriber may be asked to accept a PRM content instance over a longer download duration but at the same price as a result of lack of bandwidth capacity or lack of VOD bandwidth availability for reuse. Consequently, upon subscriber consent, the PRM application server 319 (FIG. 3) employs other available bandwidth capacity using in-band or out-of-band BFS services or a combination thereof. Numerous unique combinations of PRM content delivery may be employed when lacking bandwidth resources.